

Att. Docket No: 402801

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Edward Raymond Dowski, Jr.

Application No.: 09/942,392

Filed: 31 August 2001

Group No.:

2873

Examiner:

Unknown

For: **WAVEFRONT CODING OPTICS**

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**FILED UNDER 37 C.F.R. § 1.97(B)**

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Pursuant to 37 C.F.R. §§ 1.56, 1.97(b) and 1.98, Applicant hereby submits a Supplemental Information Disclosure Statement Form PTO-1449 (modified) along with copies of all references cited therein.

Applicant submits that the cited references, taken alone or in combination, neither anticipate nor render obvious the present invention. Consideration of the foregoing in relation to this application is respectfully requested.

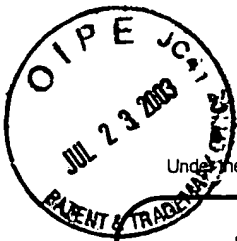
Applicant believes no fees are currently due. However, should any additional fees be required in connection with the filing of this Information Disclosure Statement, the Commissioner is hereby authorized to charge said fees to Deposit Account No. 12-0600.

Respectfully submitted,

Date: July 21, 2003

By

  
Dan Cleveland, Jr., Reg. No. 36,106  
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PTO/SB/21 (05-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	10 pages + 151 cited references	Application Number	09/942,392
		Filing Date	31 August 2001
		First Named Inventor	Edward Raymond Dowski, Jr.
		Art Unit	2873
		Examiner Name	Unknown
		Attorney Docket Number	402801

**ENCLOSURES (check all that apply)**

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**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual name	Dan Cleveland, Jr.
Signature	
Date	July 21, 2003

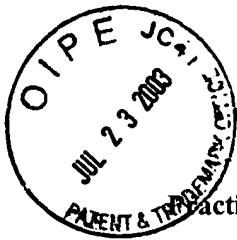
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2873

Practitioner's Docket No. 402919

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Edward Raymond Dowski, Jr.

Application No.: 09/942,392

Filed: 31 August 2001

Group No.: 2873

Examiner: Unknown

**For: WAVEFRONT CODING OPTICS**

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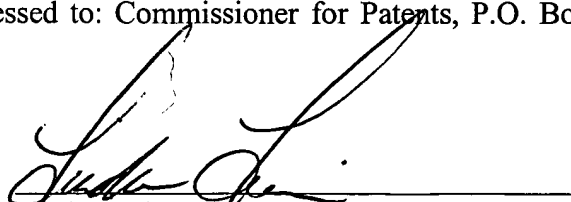
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Date of Deposit: 21 July 2003

I hereby state that the following attached papers:

1. Transmittal Form SB-21 (1 page)
2. Supplemental Information Disclosure Statement Transmittal (1 page)
3. Substitute for Form 1449A/PTO (7 pages)
4. Copies of 151 cited references
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 7

### Complete if Known

Application Number	09/942,392
Filing Date	31 August 2001
First Named Inventor	Edward Raymond Dowski, Jr.
Group Art Unit	2873
Examiner Name	Unknown
Attorney Docket Number	402801

Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	1	2,959,105		Sayanagi	11-08-1960	
	2	3,054,898		Westover et al.	09-18-1962	
	3	3,305,294		Alvarez	02-21-1967	
	4	3,583,790		Baker	06-08-1971	
	5	3,856,400		Hartmann et al.	12-24-1974	
	6	3,873,958		Whitehouse	03-25-1975	
	7	4,062,619		Hoffman	12-13-1977	
	8	4,082,431		Ward III	04-04-1978	
	9	4,174,885		Joseph et al.	11-20-1979	
	10	4,178,090		Marks et al.	12-11-1979	
	11	4,255,014		Ellis	03-10-1981	
	12	4,275,454		Klooster Jr.	06-23-1981	
	13	4,276,620		Kahn et al.	06-30-1981	
	14	4,308,521		Casasent et al.	12-29-1981	
	15	4,349,277		Mundy et al.	09-14-1982	
	16	4,466,067		Fontana	08-14-1984	
	17	4,480,896		Kubo et al.	11-06-1984	
	18	4,573,191		Kidode et al.	02-25-1986	
	19	4,575,193		Greivenkamp Jr.	03-11-1986	
	20	4,580,882		Nuchman et al.	04-08-1986	
	21	4,589,770		Jones et al.	05-20-1986	
	22	4,642,112		Freeman	02-10-1987	
	23	4,650,292		Baker et al.	03-17-1987	
	24	4,725,881		Buchwald	02-16-1988	
	25	4,734,702		Kaplan	03-29-1988	
	26	4,794,550		Greivenkamp Jr.	12-27-1988	
	27	4,825,263		Desjardins et al.	04-25-1989	
	28	4,827,125		Goldstein	05-02-1989	
	29	4,843,631		Steinpicler et al.	06-27-1989	
	30	4,936,661		Betensky et al.	06-26-1990	
	31	4,964,707		Hayashi	10-23-1990	
	32	4,989,959		Plummer	02-05-1991	
	33	5,003,166		Girod	03-26-1991	
	34	5,076,687		Adelson	12-31-1991	
	35	5,102,223		Uesugi et al.	04-07-1992	
	36	5,128,874		Bhanu et al.	07-07-1992	
	37	5,142,413		Kelly	08-25-1992	
	38	5,165,063		Strater et al.	11-17-1992	

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 7

### Complete if Known

Application Number	09/942,392
Filing Date	31 August 2001
First Named Inventor	Edward Raymond Dowski, Jr.
Group Art Unit	2873
Examiner Name	Unknown
Attorney Docket Number	402801

### U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	39	5,193,124		Subbarao	03-09-1993	
	40	5,243,351		Rafanelli et al.	09-07-1993	
	41	5,248,876		Kerstens et al.	09-28-1993	
	42	5,270,825		Takasugi et al.	12-14-1993	
	43	5,270,861		Estelle	12-14-1993	
	44	5,270,867		Estelle	12-14-1993	
	45	5,280,388		Okayama	01-18-1994	
	46	5,299,275		Jackson et al.	03-29-1994	
	47	5,301,241		Kirk	04-05-1994	
	48	5,307,175		Seachman	04-26-1994	
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	53	5,442,394		Lee	08-15-1995	
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	55	5,465,147		Swanson	11-07-1995	
	56	5,473,473		Estelle et al.	12-05-1995	
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	58	5,521,695		Cathey Jr. et al.	05-28-1996	
	59	5,532,742		Kusaka et al.	07-02-1996	
	60	5,555,129		Konno et al.	09-10-1996	
	61	5,565,668		Reddersen et al.	10-15-1996	
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	75	6,128,127		Kusaka	10-03-2000	
	76	6,144,493		Okuyama et al.	11-07-2000	

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Application Number	09/942,392
Filing Date	31 August 2001
First Named Inventor	Edward Raymond Dowski, Jr.
Group Art Unit	2873
Examiner Name	Unknown
Attorney Docket Number	402801

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		Number	Kind Code <sup>2</sup> (if known)			
	77	6,172,723		Inoue et al.	01-09-2001	
	78	6,172,799		Raj	01-09-2001	
	79	6,208,451		Itoh	03-27-2001	
	80	6,218,679		Takahara et al.	04-17-2001	
	81	6,219,113		Takahara	04-17-2001	
	82	6,248,988		Krantz	06-19-2001	
	83	5,756,981		Roustaei et al.	05-26-1998	
	84	5,166,818		Chase et al.	11-24-1992	
	85	5,218,471		Swanson et al.	06-08-1993	
	86	4,804,249		Reynolds et al.	02-14-1989	
	87	3,614,310		Korpel	10-19-1971	
	88	4,655,565		Freeman	04-07-1987	

### FOREIGN PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sub>6</sub>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	1	EPO	0759573 A2		Eastman Kodak Company	02-26-1997		
	2	EPO	0531926 B1		Matsushita Electric Industrial Co., Ltd.	3-17-1993		
	3	EPO	0981245 A2		Canon Kabushiki Kaisha	2-23-2000		
	4	EPO	0618473 A2		Kuraray Co., Ltd.	10-5-1994		
	5	EPO	0584769 B1		Matsushita Electric Industrial Co., Ltd.	3-2-1994		
	6	EPO	0791846 A2		Canon Kabushiki Kaisha	8-27-1997		
	7	UK	2278750 A		Motion Media Technology Limited	12-7-1994		
	8	JP	2000-98301 A		Olympus Optical Co.	04-07-2000		
	9	WO	99/57599		University Technology Corporation	11-11-1999		
	10	WO	00/52516		Boston Innovative Optics	09-08-2000		
	11	EPO	0742466 A		Johnson & Johnson Vision	11-13-1996		

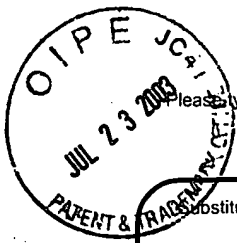
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 7

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First Named Inventor	Edward Raymond Dowski, Jr.
Group Art Unit	2873
Examiner Name	Unknown
Attorney Docket Number	402801

## OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/	1	J. OJEDA-CASTANEDA, L. R. BERRIEL-VALDOS, and E. MONTES, "Spatial filter for increasing the depth of focus", Optics Letters, Vol. 10, No. 11, p520-522, November, 1985	
/	2	J. OJEDA-CASTANEDA, and A. DIAZ, "High focal depth by quasibifocus", Vol. 27, No. 20, p4163-4165, October 15, 1988	
/	3	W. CHI and N. GEORGE, "Electronic imaging using a logarithmic asphere", Optics Letters, Vol. 26, No., 12, p 875-877, June 15, 2001	
/	4	J. OJEDA-CASTANEDA, E. TEPICHIN, and A. PONS, "Apodization of annular apertures: Strehl ratio", Applied Optics, Vol. 27, No. 24, p 5140-5145, December 15, 1988	
/	5	D. L. MARKS, R. A. STACK, D. J. BRADY, and J. VAN DER GRACHT, "Three-dimensional tomography using a cubic-phase plate extended depth-of-field system", Optics Letters, Vol. 24, No. 4, p 253-255, February 15, 1999	
/	6	S. C. TUCKER, W. T. CATHEY, and E. R. DOWSKI, Jr, "Extended depth of field and aberration control for inexpensive digital microscope systems", Optics Express, Vol. 4, No. 11, p467-474, May 24, 1999	
/	7	H. BARTELT, J. OJEDA-CASTANEDA, and E. E. SICRE, "Misfocus tolerance seen by simple inspection of the ambiguity function", Applied Optics, Vol 23, No. 16, p 2693-2696, August 15, 1984	
/	8	J. OJEDA-CASTANEDA, L. R. BERRIEL-VALDOS, and E. MONTES, "Ambiguity function as a design tool for high focal depth", Applied Optics, Vol 27, No. 4, p 790-795, February 15, 1988	
/	9	J. OJEDA-CASTANEDA, P. ANDRES, and A. DIAZ, "Annular apodizers for low sensitivity to defocus and to spherical aberration", Optics Letters, Vol. 11, No. 8, p 487-489, August, 1986	
/	10	J. OJEDA-CASTANEDA, E. TEPICHIN, and A. DIAZ, "Arbitrarily high focal depth with a quasioptimum real and positive transmittance apodizer", Applied Optics, Vol 28, No. 13, p 2666-2670, July 1, 1989	
/	11	J. OJEDA-CASTANEDA, and L. R. BERRIEL-VALDOS, "Arbitrarily high focal depth with finite apertures", Optics Letters, Vol. 13, No. 3, p 183-185, March, 1988	
/	12	G. INDEBETOUW, AND H. BAI, "Imaging with Fresnel zone pupil masks: extended depth of field", Applied Optics, Vol 23, No. 23, p 4299-4302, December 1, 1984	
/	13	W. T. WELFORD, "Use of annular apertures to increase focal depth", Journal of the Optical Society of America, Vol. 50, No. 8, p 749-753, August, 1960	
/	14	C. VARAMIT, and G. INDEBETOUW, "Imaging properties of defocused partitioned pupils", J. Opt. Soc. Am. A, Vol. 2, No. 6, p 799-802, June 1985	
/	15	E. R. DOWSKI Jr., and W. T. CATHEY, "Single lens single-image incoherent passive-ranging systems", Applied Optics, Vol 33, No. 29, p 6762-6773, October 10, 1994	

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Examiner Signature		Date Considered	
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Sheet 5 of 7

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### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/	16	W. T. CATHEY, B. R. FRIEDEN, W. T. RHODES, and C. K. RUSHFORTH, "Image gathering and processing for enhanced resolution", J. Opt. Soc. Am. A, Vol. 1, No. 3, p 241-250, March 1984	
/	17	J. VAN DER GRACHT, E. R. DOWSKI Jr., M. G. TAYLOR, and D. M. DEEVER, "Broadband behavior of an optical-digital focus-invariant system", Optics Letters, Vol. 21, No. 13, p 919-921, July 1, 1996	
/	18	G. HAUSLER, "A method to increase the depth of focus by two step image processing", Optical Communications, Vol. 6, No. 1, p 38-42, September, 1972	
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### Complete if Known

Application Number	09/942,392
Filing Date	31 August 2001
First Named Inventor	Edward Raymond Dowski, Jr.
Group Art Unit	2873
Examiner Name	Unknown
Attorney Docket Number	402801

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
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